



TROPICS & GLOBAL CLIMATE

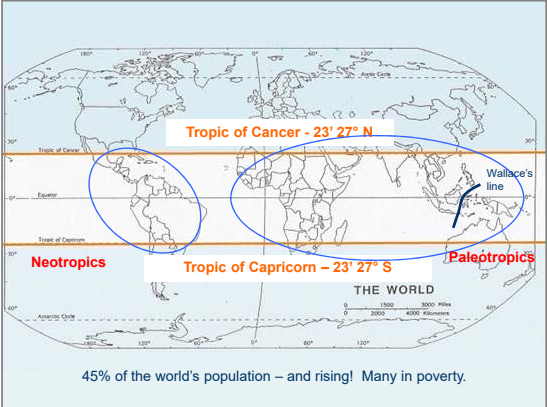
Learning objectives:

- Define the tropics geographically
- Describe the variety of ecosystems that occur in the tropics
- Describe how climate differs in the tropics versus temperate zone
- Explain why seasons occur
- Describe air circulation patterns in the tropics that drive global climate
- Explain El Niño and its likely effects on coastal climate

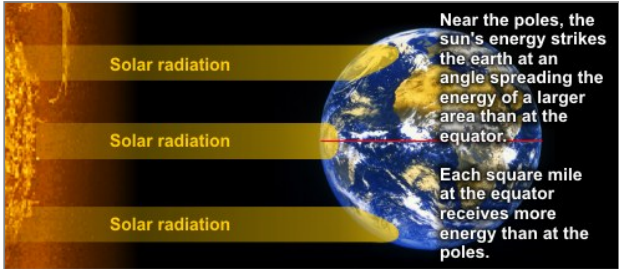
Question

What are “the tropics”?

Definition of the Tropics




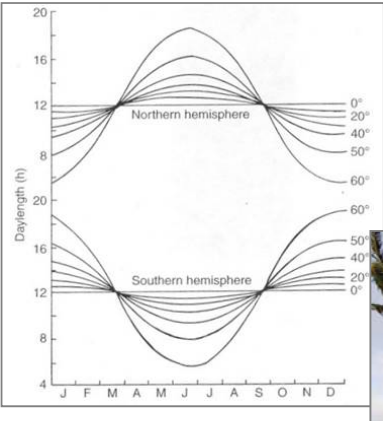
Tropical Climate



Source: NOAA

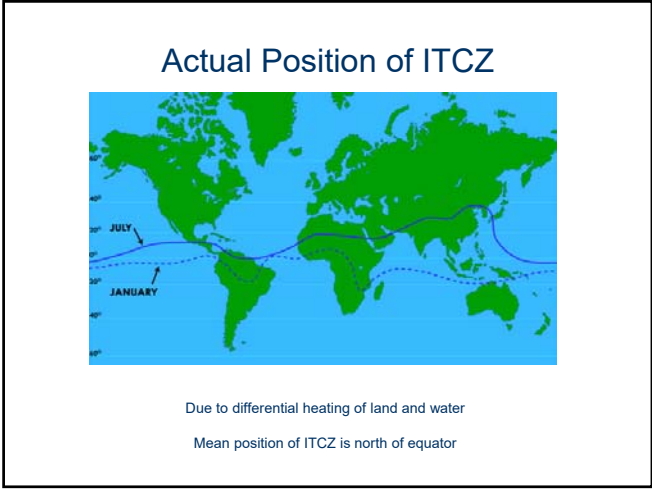
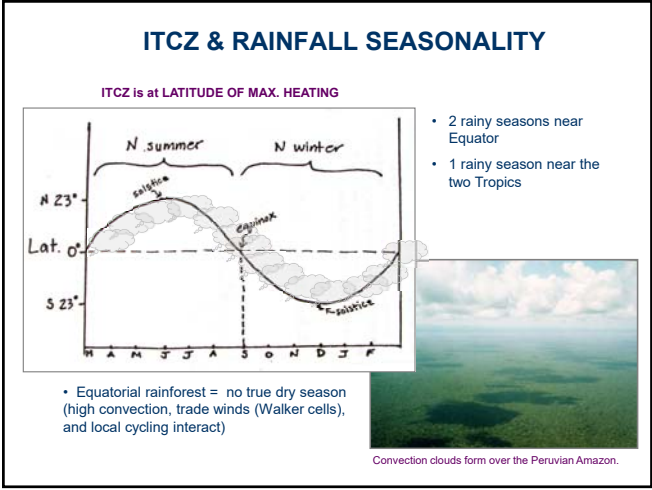
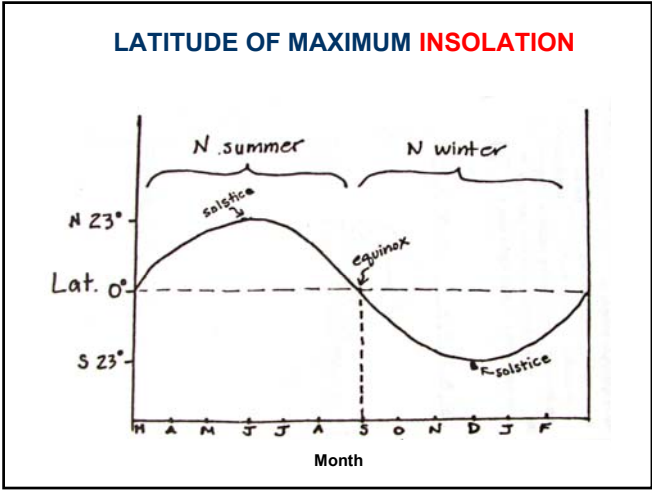
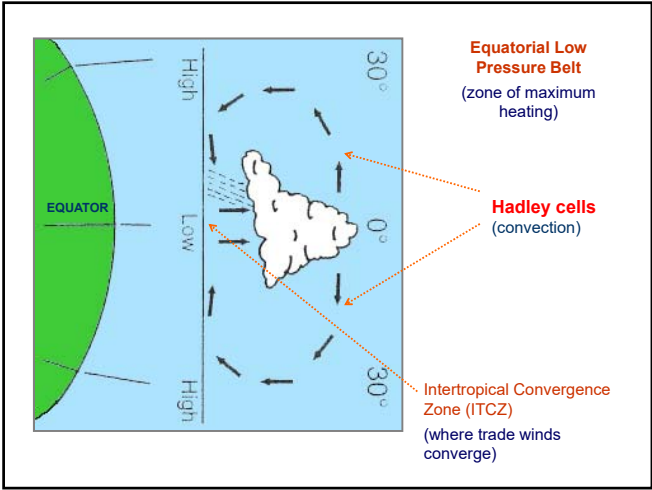
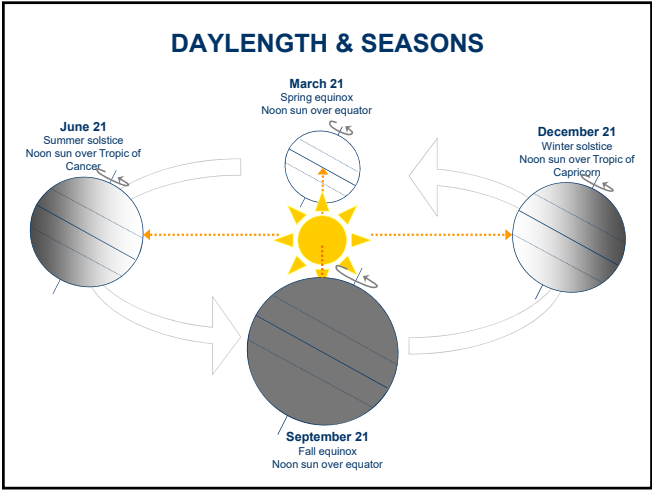
Higher **insolation**  
Higher average temperatures  
Higher average rainfall

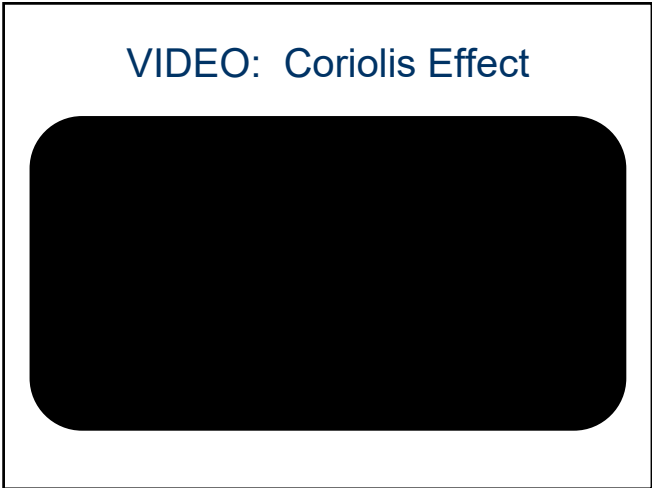
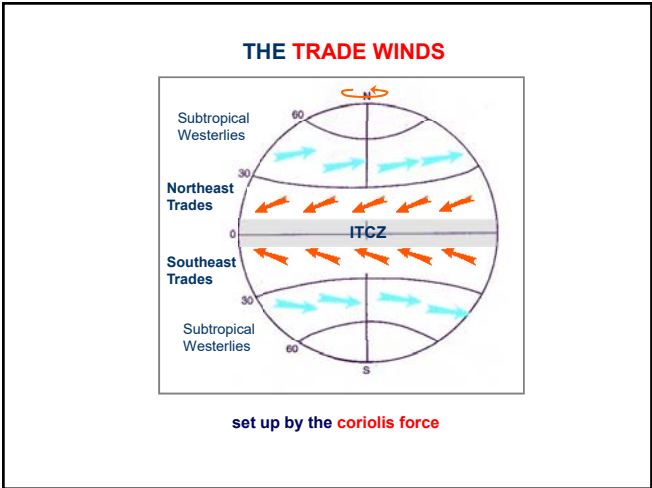
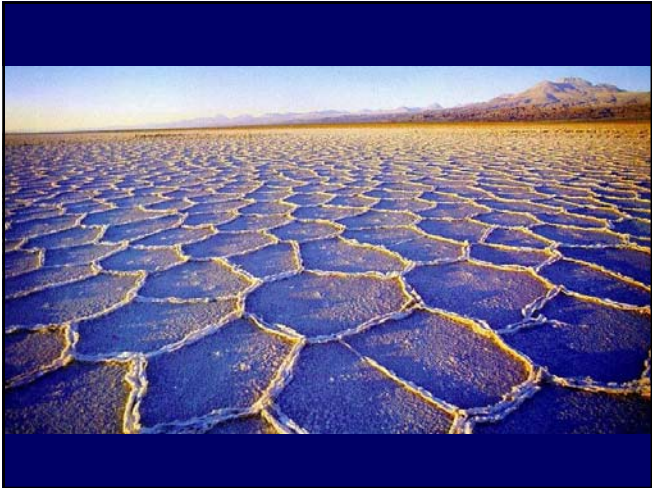
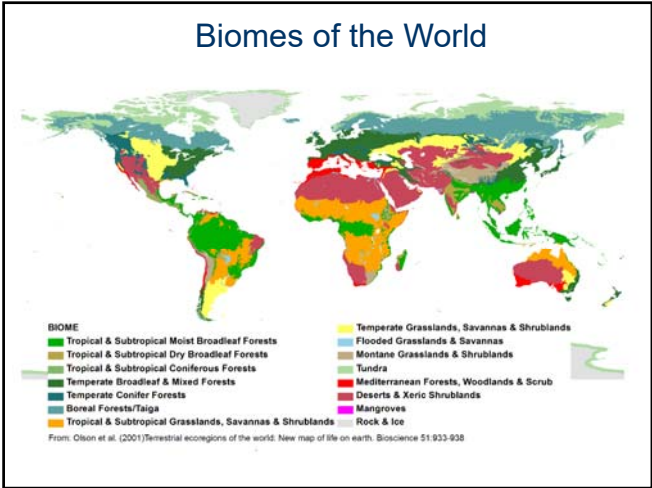
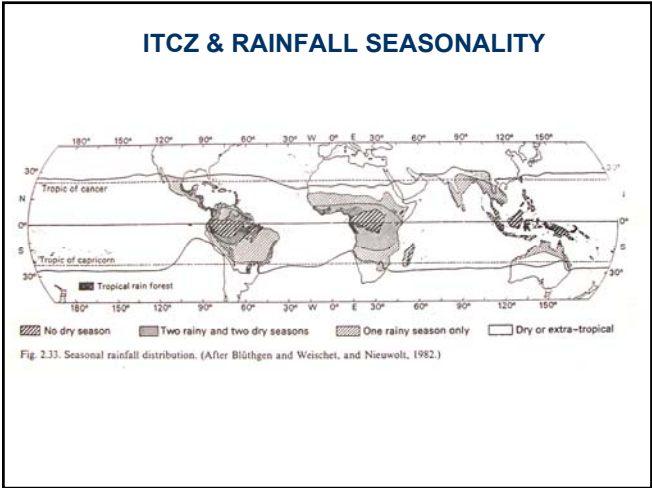
Tropics vs. Temperate Zone



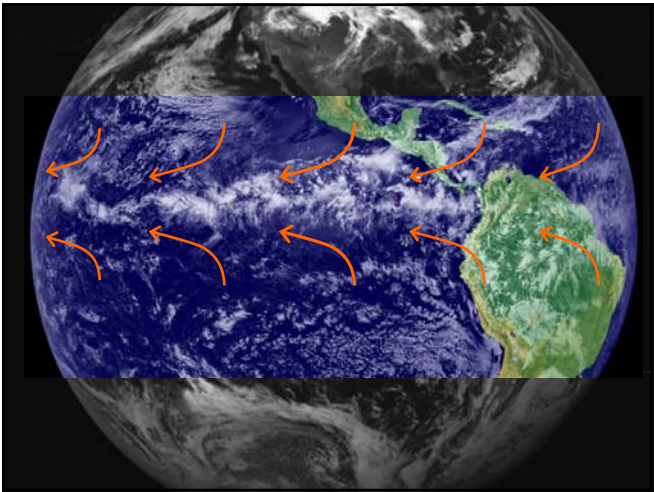
Question

What are seasons and what causes them?





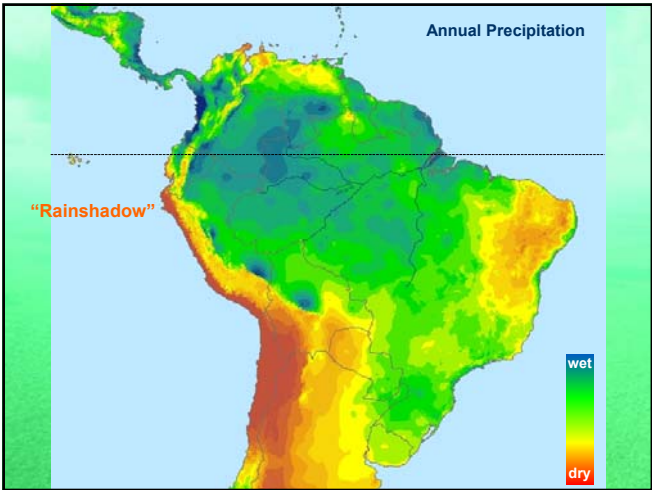
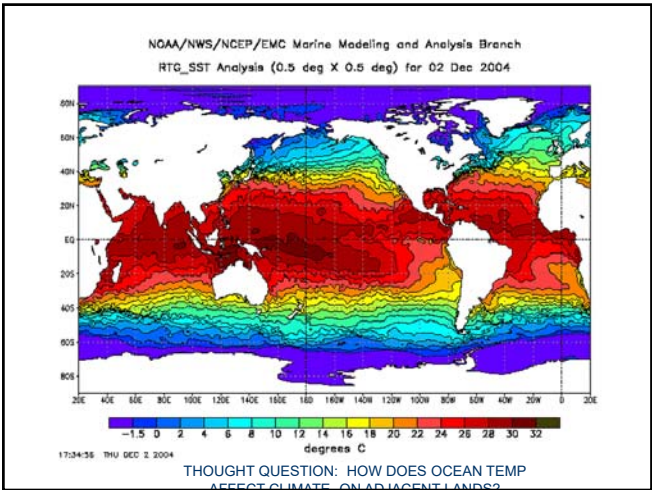




TRADE WINDS & THE MAJOR OCEAN GYRES

A map of the world showing trade winds and major ocean gyres. The map includes labels for the Tropic of Cancer, Equator, Tropic of Capricorn, and major ocean currents like the Gulf Stream, Atlantic, and Pacific. It also shows desert and arid regions. A small image of a sailing ship is included.

Which side of an ocean basin has warmer water?  
Which side of a continent has less rain?



LOCAL/REGIONAL WEATHER  
OROGRAPHIC LIFT

Adiabatic Lapse Rate:

A photograph of a mountain peak with clouds. The image shows the mountain rising from a forested area, with clouds forming at the peak. The image is titled "LOCAL/REGIONAL WEATHER OROGRAPHIC LIFT".

LOCAL/REGIONAL WEATHER  
OROGRAPHIC LIFT

Adiabatic Lapse Rate: Temp. ↓ ~6°C every 1000 m

A photograph of a mountain peak with clouds. The image shows the mountain rising from a forested area, with clouds forming at the peak. The image is titled "LOCAL/REGIONAL WEATHER OROGRAPHIC LIFT".

